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REMARKS

A. Election/Restrictions

Affirmation of the election to prosecute the claims of Group I is made. The non-elected claims (claims 107-113, 123-125 and 127-132) have been canceled, but Applicant reserves the right to reintroduce those claims in a divisional or continuing application.

B. Specification

The disclosure has been objected to because of informalities described in greater detail at pages 2 and 3 of the Office Action.

The phrase "electrical drive means" in claims 105 and 106 and the phrase "electronic drive elements" in claim 114 have been amended to more clearly recite aspects of the invention.

Regarding the terms "a separator," "an inherent mask," "a mask," "an aperture," "a plate," "spacer" and "divider," claims 105 and 106 have been amended to more clearly recite as aspects of the invention. It is noted that the terms aperture, plate and divider are not used in the pending claims. Also, the terms aperture and plate referred to by the Examiner are believed to relate to a ring aperture (figure 13) which does not form part of the claimed subject matter (but the ring aperture could form part of a larger system that includes the claimed subject matter). The term separator generally refers to a structure located between picture elements and the separator structure inherently performs a mask function. The spacers refer to portions or segments of the separator. As a result, the disclosure does not use a confusing variety of terms for the same thing.

Accordingly, reconsideration and withdrawal of the informality objections is respectfully requested.

C. Rejections Under 35 U.S.C. § 112

Claims 117-119 have been rejected under 35 U.S.C. § 112, second paragraph. Claims 117-119 have been amended to more clearly recite that which the Applicant

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regards as aspects of the invention. Attention is also directed to page 24, lines 19-24 of the specification. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 112, second paragraph, is respectfully requested.

D. Rejections Under 35 U.S.C. § 103

D(i). Claims 103-106, 114-116, 118, 120-122 and 126

Claims 103-106, 114-116, 118, 120-122 and 126 have been rejected under 35 U.S.C. § 103 over U.S. Patent No. 6,246,456 to Inoue in view of U.S. Patent No. 5,959,710 to Yaniv.

Independent claim 105 is directed to a liquid crystal display that, for simplicity, will be referred to herein as a liquid crystal device or LCD. The claimed LCD is particularly well adapted for use in a Schlieren projection system. As claimed, the LCD has liquid crystal picture elements that are integral with a separator. For example, in one embodiment, the separator is made from the same material as a medium component of the picture elements (see new dependent claim 133).

To minimize projection of areas corresponding to the separator (note that scattered light is projected to the viewer in a Schlieren projection system), the separator provides an inherent mask function (e.g., to "hide" areas between the picture elements). As claimed, the separator is non-selectively operable to affect light and acts to transmit light between the picture elements without substantial scattering. As a result, when used in the Schlieren projection system, the areas corresponding to the separator are substantially not projected.

Turning to the references, none of Inoue, Yaniv or their combination teach or reasonably suggested the claimed subject matter.

With initial attention to Inoue, Inoue is concerned with lowering light leakage through a liquid crystal panel (see, for example, Inoue's abstract). In this regard, Inoue explicitly teaches away from the claimed invention. More specifically, Inoue uses spacers to vertically separate a lower substrate from an upper substrate and the Inoue spacers are different from the claimed separator in at least three regards. First, the

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Inoue spacers are constructed to scatter light to meet Inoue's goal of reducing light leakage. For this purpose, the Inoue spacers can be colored or can have surface roughness (see, column 3, lines 5-9). This scattering is in direct opposition to the claimed transmissive quality of the separator. Second, the Inoue spacers are made to be non-integral with Inoue's picture elements. For example, the Inoue spacers are silicon dioxide (SiO_2) and are not integral with the liquid crystal/polymer medium of Inoue. Third, the spacer segments of the separator are claimed to be located in relation to the space between electrode of the LCD. No such relationship is present in Inoue. For example, see figure 1 where spacer 3 is located directly above electrode 2b.

Yaniv does not cure the deficiencies of Inoue as a teaching reference. Like Inoue, Yaniv uses spacers to vertically separate a lower substrate from an upper substrate and also fails to teach or to reasonably suggest the claimed separator integral with picture elements or the claimed mask function. Although the spacers of Yaniv are formed to surround picture elements defined by the placement of electrodes, Yaniv explicitly states that the spacers avoid contact with the display elements (see, column 2, lines 7-10). Accordingly, the spacers of Yaniv cannot be integral with picture elements and the Yaniv assembly fails to provide a mask between respective picture elements as found in the claimed invention. Also, Yaniv does not teach or suggest that the spacers are without substantial scattering and, even if they were without substantial scattering, the lateral area between the spacers and the electrodes in Yaniv would scatter light. Such scattered light would be projected in a Schlieren projection system. Furthermore, the Yaniv spacers are made from carbon, graphite or diamond (column 3, lines 56-63). The areas between the Yaniv spacers are filled with a liquid crystal material (column 4, lines 20-22). The use of these divergent materials further teaches away from the integration between spacers and picture elements.

As should be appreciated, even if the combination proposed by the Examiner were made, the LCD of claim 105 would not result. The plural liquid crystal picture elements with integral separator would not be present. Also not present would be the inherent mask to transmit light without substantial scattering in the space between

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electrodes. Rather, the result would be an LCD with spacers that scatter light to reduce light leakage as found in Inoue with the spacers surrounding but laterally spaced apart from the electrodes as found in Yaniv. Therefore, even if the proposed combination were made, additional unmotivated changes to the combined assembly would be required to arrive at the invention as recited by claim 105.

Claims 133-137 have been added to depend from claim 105. These claims recite further novel and unobvious features of the invention. Full consideration of these aspects of the invention by the Examiner is respectfully requested.

Turning now to independent claim 106, like claim 105, claim 106 is directed to an LCD where a separator is integral with plural liquid crystal elements. The deficiencies of Inoue, Yaniv and their combination with respect to the claimed subject matter is discussed above and, for the sake of brevity, will be omitted. Nevertheless, it should be apparent that claim 106 patently defines over the prior art.

The claims that depend from claim 106 recite further novel and unobvious features of the invention. For example, claim 103 is directed to a mask function that is not present in the prior art. As another example, claim 126 describes a structural relationship between electrical components used to drive the electrodes and the separator that is not taught or reasonably suggested by the prior art. Claims 138-141 have been added to depend from claim 106 and full consideration of these aspects of the invention by the Examiner is respectfully requested.

Turning now to independent claim 114, claim 114 is directed to an LCD system where a mask is present between volumes of liquid crystal in a medium. The mask is located with respect to electrodes such that the mask covers a substrate up to a lateral boundary of each electrode. As discussed in greater detail above, none of Inoue, Yaniv or their combination teach or reasonably suggest the claimed arrangement. In particular, the separators of Inoue and Yaniv do not cover a substrate up to a lateral boundary of each electrode.

The claims that depend from claim 114 recite further novel and unobvious features of the invention. For example, claim 116 recites that the mask is substantially

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non-scattering. Claims 142-144 have been added to depend from claim 114 and full consideration of these aspects of the invention by the Examiner is respectfully requested.

In view of the foregoing, reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) is respectfully requested.

D(ii). Claims 117 and 119

Claims 117 and 119 have been rejected under 35 U.S.C. § 103(a) over Inoue in view of Yaniv and further in view of U.S. Patent Application Publication No. 2001/0005246 to Takiguchi. Claims 117 and 119 depend from claim 114 and are considered to patently define over the prior art for at least the reasons described above since Takiguchi does not cure the deficiencies of the proposed combination of Inoue and Yaniv. Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) is respectfully requested.

E. Added Claims

As indicated, claims 133-137 have been added to depend from claim 105, claims 138-144 have been added to depend from claim 106 and claims 142-144 have been added to depend from claim 114. In addition, independent claim 145 and claims 146-147 depending claim 145 have been added.

F. Conclusion

In light of the foregoing, it is respectfully submitted that the present application is in condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

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If there are any fees resulting from this communication, please charge same to our Deposit Account No. 18-0988, our Order No. LAMBP0102WOUS.

Respectfully submitted,

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